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	Page
FAO—An Interpretation	<i>Gove Hambridge</i> 3
High Production and Consumption .	<i>W. W. Cochrane</i> 8
Sparkplug for Rural Industries	<i>Gus Larson</i> 14
Central Valley Highlights	<i>Mary Montgomery</i> 18
Tenure Reform in Puerto Rico . .	<i>Marshall Harris</i> 22
African Agriculture.	<i>Herbert King</i> 27
Books	<i>Harold A. Vogel, Charl Ormond Williams, Jesse W. Tapp, Jane S. McKimmon, Everett E. Edwards, Gladys Baker, J. G. Riddle, Glenn Rule</i>

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF AGRICULTURAL ECONOMICS



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158

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FAO—

An Interpretation

By GOVE HAMBIDGE. Readers will welcome this interpretation by a well-known agricultural writer who has been working closely with this organization since the first preliminary meeting at Hot Springs more than two years ago.



I HAVE READ that the ancient Egyptians used to prop up a mummy at their feasts. The silent guest had a sobering influence, reminding those present of the end that, soon or late, awaited them all. At the Quebec conference where the Food and Agriculture Organization was established during the last 2 weeks of October 1945 sat a more dreadful guest—the fact of the atomic bomb. Its presence seemed to pervade the proceedings; soon or late, the delegates knew, chaos awaits our civilization unless the new international organizations, of which FAO was the first to be launched, succeed in bringing about cooperation among governments and peoples for the building of a peaceful and orderly world.

Since this is a personal interpretation, I will venture the opinion that

the appointment of the Scottish humanitarian, scientist, and farmer, Sir John Boyd Orr, as Director-General of FAO was in large part a recognition of the urgency of the task. The conference might have chosen a less forthright and colorful leader. Instead, it picked a man who for years fought for widespread application of the findings of modern science in agricultural production and nutrition as the means to eliminate hunger and want; who is an ardent, not a lukewarm, advocate of international cooperation; who, along with scientific hard-headedness and native bargaining sense, has a crusading spirit for the ideas on which FAO is based. If there had been no John Boyd Orr, to paraphrase an old saying, the conference would have had to invent one to give FAO the positive meaning and the vigorous start it needs.

The meeting was equally fortunate in its chairman, the Honorable L. B. Pearson, Canadian Ambassador to the United States and Chairman of the Interim Commission.

"Mike" Pearson's progressive viewpoint, sense of humor, tact, skill in handling difficult situations, and driving energy were largely responsible for the success of the conference.

This Was Done

It was a hard-working conference. Before it was over: Forty-two nations had joined FAO—Australia, Belgium, Bolivia, Brazil, Canada, Chile, China, Colombia, Cuba, Czechoslovakia, Denmark, the Dominican Republic, Ecuador, Egypt, France, Greece, Guatemala, Haiti, Honduras, Iceland, India, Iraq, Lebanon, Liberia, Luxembourg, Mexico, the Netherlands, New Zealand, Nicaragua, Norway, Panama, Paraguay, Peru, the Philippine Commonwealth, Poland, Syria, the Union of South Africa, the United Kingdom, the United States of America, Uruguay, Venezuela, Yugoslavia. Present as observers were the Union of Soviet Socialist Republics, the Byelorussian Soviet Socialist Republic, the Ukrainian Soviet Socialist Republic, and Argentina.

Sir John Orr had been made Director-General for the first 2 years.

An Executive Committee of 15 had been appointed: Mayer (France), Chairman; Tolley (U. S. A.), Vice-Chairman; Bajpai (India), Baker (Haiti), Barton (Canada), Belleza (Brazil), Enfield (U. K.), Fawcett (New Zealand), Fjelstad (Norway), Gallardo (Mexico), Haidari (Iraq), Mikolajczyk (Poland), Tsou (China), Viljoen (Union of South Africa), Wauters (Belgium).

Rules of procedure, financial regulations, and a tentative budget for the first year had been adopted.

Washington had been decided on as temporary headquarters and the seat of UNO as permanent headquarters.

Decisions had been made to absorb the International Institute of Agriculture and to work in the closest possible way with the United Nations Organizations whose functions are related to those of FAO.

Pending the decision of UNO on the language question, English and French had been adopted as the working languages after the first conference, and English, French, Spanish, Russian, and Chinese as the official languages.

Some 300 recommendations had been made by 6 technical committees—on nutrition and food management, agriculture, forestry and forest products, fisheries, marketing, and statistics—which met in more than 200 sessions during the 2 weeks.

These recommendations are of course the heart of the work. Their number and range show clearly how big a task FAO faces.

Practical Unanimity

The surprising thing in the committee meetings was the large amount of agreement and the comparatively small amount of disagreement. The conference was a melting pot of national interests representing extremely varied conditions, as the membership list indicates; of producer interests and consumer interests; and of the best thinking and knowledge of some of the world's ablest scientists and other experts in diverse fields. Out of the melting pot came what might fairly be called a consensus of informed world opinion on what needs to be done and can be done, in those basic areas of man's welfare represented by food, agriculture, forestry, and fisheries, to bring progress, order, and peace.

In Brief

The rationale of FAO can be summed up, it seems to me, in the following generalizations:

The most formidable enemy of progress, order, and peace in our time is the extreme unbalance in the world. Social forces seek a dynamic equilibrium just as do the forces of nature. Where they are violently out of balance in either case, there are profound disturbances. The physical seismograph records them as earthquakes; a social seismograph would record them as revolutions and wars.

The social forces are now violently out of balance. At least half, probably nearer two-thirds, of the world's people live in extreme poverty and

ignorance; they have a very small quantity of life as measured by the years between birth and death and the amount of preventable disease; they cannot produce enough to eat or wear or house themselves decently, let alone such luxuries as automobiles and radios. The other half (or third), thanks largely to their command of modern scientific and technological developments, enjoy more wealth and educational advantages, a larger quantity of life, and a greater productive power than any comparable group in the world's history. Or to put it differently, half the world lives in the Middle Ages, the other half in the twentieth century.

No force can indefinitely maintain this extreme unbalance. Either one-half will be dragged down or the other half must be pulled up until the two are a great deal nearer an equal level. We, the fortunate half, do not want to be dragged down, whether by the slow process of choking on our own unused productive capacity—we can now produce much more than we have been able to use ourselves—or by the hasty one of atomic destruction. We want to be able to develop the far greater potentialities that we see in the future as science and technology continue to advance. The unfortunate half, on the other hand, are eager to pull themselves up to higher levels.

If the disparity cannot be corrected peacefully, they will try to correct it by violence. That, as I see it, is the fundamental reason for the present attempts to set up effective international organizations in the major fields of economic, social, and cultural activity. They are to be the means for peacefully achieving a dynamic equilibrium among nations—and as a corollary, among

groups within nations—by an upward adjustment.

Two Aspects

Viewed in this light—and it is, of course, only one of many possible ways of looking at the world situation—the work of FAO will have two aspects. One will be helping the people of the relatively undeveloped countries to lift themselves to higher levels of productivity in agriculture, forestry, and fisheries and higher levels of living in food, clothing, housing, health, education. The other will be helping the people of the more highly developed countries to use their productive capacity with the assurance that they can prosper thereby, instead of having to throttle it down as they did during the defeatist era between the two wars. Needless to say, these two aspects of the work are not separate and independent. The productive capacity of the poorer half of the world must rise if it is to be able to purchase more of the products of the other half; and vice-versa, this rise, which is so vital to both groups, will be possible only if the wealthier half furnishes technical aid, credit, and perhaps special assistance in the form of supplies of certain basic products.

Next

The range and variety of the Quebec recommendations give some idea of the mass of complicated detail that will be involved in the carrying out of such an adjustment. In very broad terms, the process might be outlined like this:

For the undeveloped countries where subsistence agriculture is of primary importance and there is of course a wide range in the degree of

development), FAO will have to find ways of pooling the world's technical knowledge and experience in nutrition, agricultural production, forestry, fisheries, agricultural education, credit, marketing, processing, transportation, and so on, and making the information available through technical missions, advisory committees, conferences, publication, and all other feasible means.

World Picture

But it is not enough to make information available. The organization will have to help governments apply it by assisting in the drawing up of concrete plans to meet specific problems, furnishing or obtaining technical aid in carrying the plans through, and acting as adviser on international loans needed for agricultural or closely related projects. FAO cannot, of course, order the internal reforms—for example, changes in antiquated land-tenure systems, or the abolition of burdensome terms on credit to farmers—that will be needed in some cases if substantial progress is to be made. It might do a good deal, however, to create an atmosphere of world public opinion favorable to such changes.

For the more highly developed countries where commercial agriculture is of primary importance, FAO will need first of all—and this work has already been started—to build up a world statistical picture, country by country and commodity by commodity, of production, supplies, and needs in relation to agricultural, forest, and fisheries products. Such a statistical picture, maintained and improved year by year, should clearly show the potential danger spots, whether for deficits or surpluses. It should also furnish the basis for ra-

tional policies, initiated internationally through FAO, designed to avoid the dangers. Such policies might include freer trade arrangements to open up markets; commodity pools for insurance against bad crop years; diversion of certain surpluses to areas of acute need through special international marketing arrangements; and, where this seemed clearly desirable, adjustments in production that would enable farmers who could not grow a certain product economically to shift to other, more advantageous types of farming.

The objectives of these policies would be threefold: to maintain a steady market for economical production of staple commodities by eliminating the violent fluctuations that play havoc under conditions of alternate oversupply and scarcity; to make economically possible the production of more of such foodstuffs as vegetables, fruits, milk, and meat, for which there is a large unfilled need in most countries; and thereby to encourage good farming and advance the interests alike of producers and consumers.

Stimulation

For both the developed and the undeveloped countries, FAO would offer services that would result in a stimulation of research in nutrition, agriculture, forestry, and fisheries all over the world, as well as a more rapid and complete exchange of information on research results and an expansion and strengthening of education in these fields.

Even more important, FAO would help to make effective the work of the other nascent interna-

tional organizations concerned with military security, trade, industrial production, credit, labor, health, education, and culture. All of these agencies must be considered as a unit; it will be impossible to advance very far on one front if the others are neglected. World industry, for example, cannot prosper as it should if the two-thirds of the world's people who are farmers live for the most part in conditions of abject poverty; nor can there be security from war if the world's economic affairs are badly askew; nor a healthy economy under the constant threat of war.

Imperative

The undertaking is difficult; but if we can make such a program work, we can look forward to a period of robust expansion like that which occurred in the United States during the great era of development in transportation, industry, and agriculture—only this expansion will be on a world scale. Once the process gets well started, some of the difficulties will disappear; success develops a momentum of its own. We must make it work. For we now live in the same world with the atomic bomb. Unless we can match our mechanical inventiveness with social inventiveness, our civilization is likely to be buried in a dust finer and hotter than that which covered Pompeii.

FAO is the world's answer to the atomic bomb.

—SIR JOHN BOYD ORR

High-Level Production and Consumption

By WILLARD W. COCHRANE. We have high farm production now and like it. Why not high domestic consumption to keep it up? This writer outlines briefly several ways in which this can be accomplished, some of which have already been tried.



FOR FIVE YEARS now farmers have thought in terms of full production and worked to achieve it. In this effort the production of agricultural commodities has trended steadily upward. And it is estimated that the net output from farms in 1945 is approximately 30 percent above the 1935-39 average. Now that final victory is achieved and the end of relief feeding is in sight (although it is now at its height) there is widespread fear among farmers and their friends that the heavy demands of the last few years will slacken off. Hence, there is talk in some quarters of controlling or curtailing agricultural production. But are there not good arguments for not curtailing production on individual farms?

The upswing in production from 1940-45 is not readily reversible. This sustained upward trend in production has not been due to exceptionally favorable weather nor has it been due to the diversion into agriculture of more resources, labor, and capital. The substantial increase in production between 1940 and 1945 was due almost entirely to improvements in technology—improvements that will not now be discarded by farmers, come prosperity

or depression. Although there are some offsetting factors, it seems safe to conclude that these technological developments are sufficient in themselves to sustain our agriculture at the wartime levels without depleting the agricultural plant. In brief, the technological developments of the war are well-nigh irreversible and will literally force agriculture to produce at high levels.

But assuming for the moment that it is possible to curtail farm production, there are good economic reasons why we do not want to curtail agricultural production on individual farms, thus holding the size of the national agricultural plant constant. If we support the general level of agricultural prices by reducing total output some resources must be taken out of production. If this reduction is effected by apportioning a fraction of it to each individual farm, then efficient resources along with the less efficient resources must be held idle and this would make for high-cost, inefficient production. And because overhead costs constitute a large share of total costs in farming, a restriction in output on an individual farm means that the overhead costs must be carried on a smaller total output, therefore average unit costs must increase. Further, the farmer

is then marketing fewer units of produce from which he may receive an income, so unless the demand for agricultural commodities is very inelastic and forces a large increase in prices, the individual may gain nothing, since he is producing at a higher cost and is selling fewer units of produce.

There are administrative difficulties in production control, too. With approximately 6 million farms in the United States, if total agricultural production is to be reduced, a program of production control must be developed which will reach down to each of these farms. A highly restrictive program is called for on each individual farm—restrictive with regard to managerial decisions—and farmers have clearly indicated that they do not like such rigorous controls.

The record of the 1930's with regard to production control is rather dismal as seen from this distance. It is true that in regard to cotton, and to a lesser extent to wheat, some reduction in output took place. But this is not true for other commodities, and certainly it is not true with regard to total output, which increased somewhat. Farmers simply shifted out of restricted commodities

into other enterprises and so held up total output. And in the commodities covered in the restriction program, farmers shifted their production to their best land, used more fertilizer, used improved strains and varieties. In that way they partially and in some cases they entirely offset the anticipated decrease in output from a decrease in planted acreage. In short, we never developed programs sufficiently restrictive in scope to actually reduce total output during the 1930's.

Strike a Balance

All this does not mean that we should now attempt to maintain a national agricultural plant in excess of needs. But it does mean that needs for food and fiber at least as great as those made manifest during the war may be satisfied on a sustained basis by American agriculture. If this output is too great in relation to the need for nonagricultural goods and services, then in an effort to strike a balance in the over-all economy some resources must be shifted out of agriculture. But the first to go should be those that are combined in inefficient operations—not those combined in efficient operations. And certainly resources should not be held idle in agriculture to reduce the volume of output. We want an expanding economy even though it means uprooting and shifting resources; not a contracting economy where efficient resources are held idle.

Two Fields

But before we start transferring resources out of agriculture—in our thinking at least—let us explore the possibility of moving into consump-

Unbeatable

This war has demonstrated that when the American businessman and the American worker and the American farmer work together, they form an unbeatable team.

—FRANKLIN D. ROOSEVELT

tion or use the wartime levels of food and fiber output. There are two great areas of effective demand—foreign and domestic. The volume of food and fiber that foreign outlets will take in the long-run period ahead is extremely uncertain. We know that effective foreign demands for food and fiber will drop considerably below those of the war and immediate postwar years. On the other hand, if a world relatively free of autarchic trade practices does materialize, the volume of exports of food and fiber in the long run should run considerably above the 1935-39 average. Hence, we may anticipate with some justification a pick-up in food and fiber exports from the 1935-39 level to contribute as a market to the increased production, but how much is anyone's guess.

Field of Promise

It is to the domestic market, and to American stomachs particularly, that we must turn for something approximating 90 percent of the demand for agricultural commodities. If we are able to achieve a high level of domestic food consumption in the reconstruction years, even though exports average no more than they did in 1935-39, we can come fairly close to moving into consumption the wartime levels of food output. But this high level of consumption is really a high level. It is something better than would be realized in a full-employment situation. And it is certainly much better than we would have by the disposal of surplus supplies through relief feeding. This high level of food consumption is one wherein the diets of all persons falling below the moderate-cost diet plan of the Bu-

reau of Human Nutrition and Home Economics are raised to the moderate-cost plan, but in which all persons already consuming in excess of it continue to do so. A floor of nutritional adequacy is established under the diets of all persons in the United States.

But though to achieve the defined high level of food consumption would come close to moving into consumption the wartime levels of production, the specific quantities of the different foods demanded would vary considerably from the quantities produced during the war. For example, to satisfy the requirements of high-level consumption, the production of beans, peas, eggs, cereals, and fats and oils would probably need to be reduced from the wartime levels, while the production of fluid milk, dairy products, and most fruits and vegetables, particularly leafy, green, and yellow vegetables would need to be increased.

Dual Goal

Setting a goal of freedom to produce maximum quantities of desired goods for a strong and vigorous market is a goal which will appeal to most farmers. They still like to grow big crops. It will also appeal to the public. They want to be well fed.

—L. J. NORTON

Such production adjustments would involve difficulties, but it is one thing to effect adjustments when over-all demand for food is maintained, and quite another thing to effect adjustments which are essentially contracting in nature.

Obviously, maintaining full employment would go a long way toward achieving the high level of food consumption. We have all seen during the war when we had something more than full employment, how consumers spent liberally for food, directing their choices so far as possible as it happens, toward high-resource-using foods, such as fruits, dairy products, and meats. Thus, agriculture has a paramount interest in maintaining full employment wherein consumers have the money to buy the kinds and quantities of foods they want. But it is beyond the scope of this paper to discuss the means of achieving full employment. All we know is that we must have it.

But Still

But even with full employment, there will remain many low-income people who, if they were fortunate enough to have their incomes increased, would buy more food, and more expensive foods. And if we don't succeed in maintaining full employment many will not have the money to buy the foods they actually need. Thus, we see the necessity of studying, discussing, and placing in operation special food consumption programs which will maintain a high demand for food at all times. Such programs are necessary to move into consumption the volume of food that our farmers want to produce and such programs are necessary to move into consumption the volume

and kinds of food which our people need in their diets to remain healthy and strong.

Many Ways

Food expenditures of low-income people may be increased in many ways. During the war to combat inflation the prices of all foods or certain foods were reduced through the device of producer subsidies. That device could be used to expand food consumption in more normal times. By this technique a part of the total costs are met by the Government somewhere along the production line. Hence, the price which is passed on to the consumer is reduced by the amount the Government defrays of the cost—or the amount of the subsidy.

Another procedure is to provide a cash grant to all consumer units whose incomes fall below some established minimum. Of course, all of the cash grant would not be used on food, but in the groups with lower incomes—the only place cash grants would be made—a very large part of the cash grant would undoubtedly be used for food. As another alternative the Stamp Plan might be revived which, as you remember, was a two-price system wherein low-income, relief families could buy certain foods with free blue stamps providing they bought a minimum amount of orange stamps.

New Way

A new plan—the Food Allotment Plan—has been developed during the war. It has not as yet been tested, but it seems to merit special consideration. Under this plan a basic food allotment is established; that is, the quantities of food deemed necessary to a nutritional and palata-

ble diet have been set up and priced so that the total cost of the diet is known. From budgetary studies it has been learned about how much families in different income levels spend for food. In the lower income groups where the normal food expenditure is less than the cost of the basic food allotment, participating families would be provided with food currency sufficient in total value, which, when added to their normal food expenditure, would enable them to buy the complete basic food allotment.

To keep participants from substituting directly or indirectly a part of this supplementary income for items other than food, it is recommended that all families covered by the plan *buy* a book of food coupons sufficient in total value to buy the complete basic food allotment—but at a total price corresponding to their normal food expenditure. For example, if the total value of the coupon book or books were \$500 per year for a four-member family and the normal food expenditure of that family were \$400, they would be permitted to buy for \$400 a food-coupon book having the value of \$500. Of course, the Government would redeem at face value the food coupons turned in by retail outlets and would thus absorb the loss. In brief, these are the mechanics of the plan.

Can Maintain

What can this plan accomplish? It can maintain the demand for food at all times at or above the cost of the basic food allotment. For whenever family incomes drop to the point where a family or families cannot afford the basic food allotment, they

would become eligible to enter the Food Allotment Plan. They would become eligible to receive a special income supplement, sufficient to maintain their over-all demand for food at the basic allotment level.

Already

But programs designed to enhance the purchasing power for foods among low-income people are not the only type of food-consumption programs we need in this country. We have made a good start with the school-lunch program, but it is only a start. Not more than 6.5 million of some 25 million school children are participating in it. We should expand this program to cover all school children and we should expand it to provide a complete, appetizing noon meal in all cases.

To complete the picture we need two more food-consumption programs: (1) A comprehensive industrial feeding program to provide all workers well-balanced noon meals readily accessible to them and (2) a program of food and nutritional assistance to expectant and nursing mothers and to preschool children. The industrial feeding program made rapid progress during the war on a voluntary basis. The Federal Government has popularized the idea and provided individual firms with technical assistance, but industrial feeding was not made mandatory or subsidized during the war as it was in England, for example. Private firms have, by and large, been quick to see the advantages of serving a low-priced adequate noon or midshift meal to their employees and have taken action to provide those meals.

Delayed

A food program directed to the special needs of expectant and nursing mothers and preschool children has never been developed in the United States. A comprehensive program designed to increase the food expenditures of low-income people would automatically meet the needs of expectant and nursing mothers and preschool children, since all persons would be provided with an income supplement sufficient to acquire a good adequate diet. But if such a comprehensive program designed to increase the expenditures for food by low-income people is not inaugurated, special programs should be placed in operation to guarantee that these vulnerable groups will not suffer from undernourishment and malnutrition.

If the latter course is followed, a program might be developed where expectant or nursing mothers or the guardians of preschool children could appear before the Public Health Service, and if it were determined that the individuals involved should have some type of food supplement, a medical doctor would make out a prescription calling for the consumption of specified quantities of certain foods. This prescription could then be filled either at food depots or specially designated private retail outlets and the Federal Government would meet the cost of the filled prescriptions.

Which Way Ahead?

Achieving the high level of food consumption as here defined would not by itself completely absorb the wartime levels of food production, but such an aggregative level of consumption would reduce the necessary adjustments in production to manageable proportions. But if we do not reach and maintain a high level of food consumption, agriculture in the United States must look forward to drastic downward readjustments either through (1) production control of the type initiated in the 1930's for which there is no assurance that it can be made effective, or (2) moving resources out of agriculture through the painful process of bankruptcy and failure following low prices, or (3) moving resources out of agriculture through the less painful but more difficult process wherein the least efficient resources in agriculture are transferred into the manufacturing and service trades.

In conclusion then, high-level consumption is an indispensable prerequisite of high-level production, hence a high level of food consumption must be the uncompromising goal of agriculture.

It is a strenuous thing this living the life of a free people.

—WOODROW WILSON

If We Want Rural Industries

Let's Get a Sparkplug

By GUS LARSON. Many rural communities want a new industry or two. This author, believing that the next few years should present unusual opportunities for developing them, suggests ways in which the necessary information about markets, local resources, and methods of production that are suitable to rural areas may be vitalized and put to work.



FOR YEARS no one in a small New York community had found any productive use for an abandoned mill. Then, not long ago, an industrial chemist spent a vacation there and got an idea. Why not convert the old mill into a chemical mixing plant? The chemist obtained the capital, added his know-how, and started the now successful chemical plant.

This New York community of 100 people acquired a small industry and the jobs that go along with it because someone from another community recognized an unused resource and did something about it. The chemist was able to see the possibilities of the mill because of his knowledge of the chemical industry. He had provided what the community lacked in ideas, capital, and knowledge.

This community illustrates just one way in which small industries are born. An industry may be started by an individual or group of individuals with knowledge—knowledge of a need in their very home town and knowledge of about how to meet that need. It may be started by a community planning

group which has studied the needs for more local employment, looked for industries suitable to their community, and then interested local or outside capital and management. Or it may be started by someone in the community who has heard of similar successful small industries elsewhere. In general, probably most successful industries are started by those who get ideas from something either seen or learned.

Suppose you have some capital that you want to invest in an industry for your home town. Like lots of others you can see good times and inevitable industrial expansion ahead in the next few years. But you do not know what kind of business would be successful in your community. Would it be any advantage to you to have one authoritative place to go in your State where you can find out about the kinds of rural industries that are successfully operating within it, what the capital and equipment requirements are, how to appraise market prospects, and essential details? Would it be any easier if you had one reliable place to go for technical and economic advice? Would it help if other com-

munities were studying their own resources and were actively putting this information within reach?

Or, if you wanted to start an industry somewhere else, perhaps in an entirely different region, would it be of any advantage to you to have one place in that State or in the Federal Government where you could get detailed information on the kinds of rural industries that might be operated there and some of the conditions under which fair success may be attained?

If your answer to most or part of these questions is in the affirmative, and if we do want more rural industries there is need now while our population and industry are in a fluid stage to provide the information sparkplugs that will actively promote the development of whatever rural resources can be profitably developed. These industries will provide needed jobs, pay rolls, and products that contribute to an ever higher level of living.

Could It Be Done?

Scattered efforts are already under way to help private enterprisers establish rural industries. Frequently information of a general nature is available from State Planning Boards and from Chambers of Commerce. Sometimes, too, the State Colleges provide information through their Economics and Engineering Departments.

In a few communities intensive local surveys have been conducted of their postwar prospects, including the number of jobs in private enterprise that are expected to be available, the local labor force, and the need for additional jobs. Studies of expected local demands suggest the

Doing

The great end of life is not knowledge but action.

—THOMAS HUXLEY

kind of expansion that might prove profitable.

These studies have been conducted by local organizations such as the Chamber of Commerce or the C. E. D. Committee, cooperating with experts from the State Colleges or State Planning Board and with the Federal Departments of Agriculture and Commerce. Such studies have been completed in Albert Lea, Minn., in Anderson, S. C., in Fort Smith, Ark., in Augusta County, Va., and in several counties in South Dakota and in Oklahoma.

Other studies provide scattered information on particular industries or on a particular business problem. The Arkansas Economic Council has mimeographed a series of summary fact sheets for such enterprises as a mattress factory, a furniture plant, and a small feed mill. Similar information is provided on a more comprehensive basis in a booklet "Alfalfa Dehydrating Mills" published by the South Dakota Resources Commission and in the bulletin "Will Making Concrete Blocks Pay In Your Community?" published jointly by the Federal Departments of Commerce and Agriculture. Similar bulletins are available from the Department of Agriculture on local fertilizer mixing and refrigerated locker plants as well as on

organizing a cooperative cotton gin and the cooperative possibilities in freezing fruits and vegetables.

The U. S. Department of Commerce has begun to publish material of help to all small businesses. For example it has recently issued a booklet called "Credit Sources for Small Business." It is prepared to give small businessmen advice on patents and other technical information that it collects through such organizations as the Geological Survey.

One difficulty with the efforts to date is that they are too few and too scattered. Suppose there were a national set-up which would integrate the efforts of the community, the State, and of the Federal Government, all of whom are working in the same direction. Suppose that this set-up was patterned after the Agricultural Extension Service—certainly an efficient organization for getting information around and for providing production know-how. Could it be done?

No attempt is made here to lay down a set pattern of action but a sketchy picture of the kind of work that would be required by local communities, the States, the Federal Government, and by private organizations has value.

Community Part

An individual or group of individuals wanting to start an industry in their community may already have an idea. It may be something they read about or may be something related to the business they are already in. Their part in the industrialization process would be to supply the management ability and the investment funds.

If they could go to a nearby college and secure the economic facts and the

production know-how, they would be able to supply the prospective industry with a necessary sparkplug. It is just possible that some member of the engineering faculty is well versed in the particular kind of industry that the prospective enterpriser has in mind. If not, some arrangements might be made through the college whereby the prospective enterprisers would be introduced to some other engineer who could help them.

The dollars-and-cents aspect of the business would also require some help, probably from the Economics department. Facilities might be made available whereby they could get help in making a market survey for the product they want to manufacture. It might take some research to give them the needed facts on competitive prices and the most economic size of plant to establish.

Such a service available to individuals and groups would also be able to service Chambers of Commerce or other interested groups who are interested not in a particular kind of plant, but in a survey of the resources that are available for further development. They could get technical assistance in making studies of their resources and the kinds of industries which could be used to develop them more effectively. Carefully chosen people in the community would take part in the assembly, analysis, and presentation of facts obtained in such studies. Local citizens and groups could take action in the light of the material and aid provided. Prospects who were considering a location would also have access to this information and to State advice as to technicalities.

Would not well-sifted economic facts, capable of verification, have a





more wholesome influence than special concessions offered in the way of taxes and a docile population?

State Part

The focal center of rural industrialization activities would be in the State. The responsible State agency might well be the present university or college, cooperating with the State development commission, the State resources board, or the State department of commerce. They would assemble and sift authoritative material on rural industries and unused resources in the State, and would quickly begin to make this information available to the public. This agency would serve as a point of contact for communities or individuals who want advice from State technicians in appraising resources and in working out ways in which these resources could be used. This State agency might also work closely with business, farm, and labor organizations, to spur well-considered action at the community level.

Money would need to be appropriated by the State legislatures and special facilities would need to be established in the States to service the people along the lines already described. In this work and in other ways, the Federal Government would need to stand behind, encourage, and assist the States in all practicable ways.

Federal Part

The Government through its present agencies like the Departments of Agriculture and Commerce, would accelerate their efforts to find out more about rural industries over the

country. They would begin to make this information available through the outlets to the people—through newspapers, magazines, radio, all effective ways. Above all they would make the information available through the responsible State agencies.

But meanwhile along with the information job some possibilities for undeveloped rural industries might be pointed out and some simplified material written. This material would be based on facts which now lie dormant in tons of technical literature such as in the various censuses of business and of manufactures, the geological reports, and in the minds of Government technicians. In addition, some scientists and technicians of the Government might hold themselves ready under well-specified conditions to help the communities through the State agencies that want to study and develop their resources.

Private Organization

Success of the entire study, information, and advisory plan would depend chiefly on the extent to which local groups and organizations obtained community cooperation. These groups would have to spearhead their own local studies, would study, sift, and weigh their material, keep verifying possibilities in mind, and develop confidence in the reliability of their materials. Often they would make their own plans for developing whatever rural industries were shown to be economically sound, or for calling the potentialities to the attention of seeking capital and enterprise.

Central Valley Project—

Highlights of Its History

By MARY MONTGOMERY. As the Central Valley Project in California and the problems it has brought to the fore are of interest far beyond its boundaries a brief background history of these issues is in order.



WEST of the Sierra Nevada and east of the Coast Range, between Mount Shasta on the north and the Tehachapis on the south, lies the great Central Valley of California. It is 450 miles long and approximately 50 miles wide—about half as large as England. Two major rivers flow through the valley floor, the Sacramento from the north and the San Joaquin from the south.

The Central Valley Project, now being constructed by the United States Bureau of Reclamation, is a complex system of water works and power facilities designed to fulfill a number of purposes, chief of which are to furnish irrigation water to areas now having none or a deficient supply, the development of hydroelectric power, the prevention of floods, the improvement of navigation, the repulsion of saline waters, and the furnishing of municipal and industrial water supplies.

Many problems have arisen in connection with the project. Controversy over the acreage-limitation features of Reclamation Law and the distribution of public power are two of the major points.

The project is the culmination of a long history of water planning in the

State. For almost 70 years both the Federal and State Governments have made studies leading to the development of California's water resources. In 1874 a three-man commission of the War Department, appointed the previous year by Congress, recommended the first valley-wide plan for coordinated water development. Since its inception in 1902 the Bureau of Reclamation has made investigations in the Central Valley. In 1878 the first State Engineer of California, William Hammond Hall, initiated investigations under an act appropriating \$100,000 "to provide a system of irrigation, promote rapid drainage and improve navigation on the Sacramento and San Joaquin Rivers." Interest in public water development has been strong in California ever since, and many reports and meetings have been concerned with the subject.

In 1920 the State of California began a series of detailed studies of water resources which by 1930 had led to the formulation of a State Water Plan. This is one of the most comprehensive and carefully worked out master plans for resource development which any State has ever made. More than \$1,000,000 was spent in its development. It was es-

sentially a long-range plan of ultimate water development, but out of it grew plans for a specific Central Valley Project not unlike the project now under construction. These plans were developed by the Office of the State Engineer and the Division of Water Resources but were reviewed and approved by joint legislative committees.

A joint Federal-State Water Resources Commission (commonly known as the Hoover-Young Commission) made a report to the President of the United States and to the Governor of California in late 1930. It recommended construction of the Central Valley Project and recommended Federal financial participation in the project. Consideration was given in the State reports and the report of the Hoover-Young Commission to financial feasibility, and it was concluded that the project was feasible if all benefits were considered and if funds could be obtained at a sufficiently low rate of interest.

Law Enactment

The State water planning led to the Central Valley Project Act of 1933. This act authorized the construction of a Central Valley Project similar to the one now under construction by the Bureau of Reclamation and provided that revenue bonds not exceeding 170 million dollars could be issued. It was expected that Federal financial assistance could be obtained and the amount of the bond issue was to be reduced by the amount of such assistance.

One feature of the Central Valley Project Act, on which there was great difference of opinion and a severe battle in the legislature, was the provision, finally incorporated, pro-

viding that preference should be given to public agencies in the distribution of any power that might be developed and the implementation of this provision by authorization of a transmission line from Shasta to Antioch.

Opponents of the project carried it to the people of the State in a referendum vote in late 1933. A chief opponent was the large private utility which has virtually a monopoly in the distribution of electricity and gas in northern and central California. The act was upheld by a narrow margin at this special election.

To the Government

With the successful outcome of the referendum of 1933, the stage seemed set for State construction of the Central Valley Project. It was then the middle of the depression, however, and the State could not raise the necessary funds. State officials appealed to the Federal Government for aid and assistance in financing. Applications for aid were made to the Federal Emergency Administration of Public Works, but they were not acted upon favorably. In accordance with an act passed by the legislature in 1935 the State Engineer of California went to Washington, D. C., and attempted to interest Federal officials and congressional committees. To one of the committees he stated that the people of California were so desperate to secure construction of the project that they were willing to accept Federal control rather than the State control, which they preferred, if that was necessary to get the project built.

Congress authorized, but did not appropriate, 12 million dollars as a Federal contribution to the project

in August 1935. At the request of certain State officials, the Bureau of Reclamation began formal negotiations at this time, and secured presidential allocation of funds in September. The Secretary of the Interior made a finding of feasibility and in late 1935 recommended its construction as a Federal reclamation project. His finding was approved by the President immediately. The project was authorized by Congress under the Rivers and Harbors Act in 1937.

Acreage Limitation

During the period 1935 to 1943 California Congressmen and State officials supported funds for construction by the Bureau of Reclamation under reclamation laws. As recent evidence has made clear, however, many people in the State did not understand fully the provisions of reclamation law. As a result, the limitation of acreage to which water may be supplied from a Federal reclamation project has developed into one of the most controversial issues involved in the Central Valley Project.

Under the law, project water may be furnished to 160 acres in single ownership of 320 acres of community property if the owner is married. Upon signature of a recordable contract with the Department of the Interior, in which he agrees to dispose of his "excess" acreage at a price that does not reflect an increased value due to the project facilities (constructed with Federal funds), the owner may receive water to irrigate his excess lands for a period of 10 years. Or he may receive project water for 160 acres, and then dry-farm or use irrigation water from present sources for the remainder of

his property. Thus he is under no compulsion to sell his excess lands.

The misunderstanding of reclamation law grew out of the circumstances surrounding Federal adoption of the project. Groups within California who were eager to obtain interest-free funds and a 40-year repayment period, also implicit in reclamation law, minimized the importance or hopefully assumed repeal or nonenforcement of the acreage limitation. In the early period the Bureau of Reclamation did not make a public issue of the question, nor did it point publicly to the effects of acreage-limitation features of the law.

Repeal Defeated

When major parts of the project were almost completed in 1943 and time was drawing near for delivery of water, large landowners in the project area and various other groups began to agitate for repeal of the limitation. In 1944 a Congressman from the San Joaquin Valley introduced an amendment to the Omnibus Rivers and Harbors Bill, calling for repeal of the acreage-limitation feature of Reclamation law. Although this measure passed the House with little popular notice, a storm of protest was aroused in California and elsewhere in the Nation. Well over 90 percent of the landowners in the Central Valley own less than 160 acres of land and the great majority of them opposed the repeal of the limitation. The amendment was ultimately defeated.

During the past year members of the Bureau of Reclamation have made successful efforts to inform the rank and file of Valley farmers of the provisions of the 160-acre limitation and other features of Reclamation

law. In October 1945 the Bureau signed a contract with one irrigation district in the San Joaquin Valley, the Southern San Joaquin Municipal Utility District, a contract which incorporates all features of the law, including the acreage limitation. There are still groups in the State, however, who continue to work for repeal of the limitation.

Hydroelectric Power

Much of the controversy over the project has centered in the proposed development, disposal, and sale of hydroelectric power. The Central Valley Project's market area coincides with that of the large power company previously mentioned. The actual market within this area is expanding beyond the present capacity of the company. The Bureau of Reclamation has been granted authority to construct transmission facilities, but thus far Congress has not been willing to appropriate the necessary funds, although 44 public agencies have either inquired about or made application to receive Central Valley power. The only transmission lines available are those of the private company and it is clearly to the interest of this company to keep this situation in effect. The company has begun construction of new lines, for which the only power available is the publicly generated power from Shasta Dam, part of the Central Valley Project.

As pointed out, the company opposed the passage of the State Central Valley Project Act in 1933. According to company representatives this opposition stemmed chiefly from the fact there was already more than sufficient power to supply the needs within the State. Since the Bureau of Reclamation took over the project,

the company has opposed the passage of a revenue bond law by the California Legislature which would amend the 1933 act so as to remove some of the restrictions on issuing revenue bonds, and thus make it possible for municipalities to receive money to build distribution systems to take power from Shasta. It has tried at the same time to make certain that it will be able to make arrangements with the Federal Government to take the power made available by the project, thus fore-stalling any competition from public agencies. Although in 1933 it said that "power resources are far ahead of consumption," the company now expresses willingness to buy all the Central Valley Project power. Because of the World War and the fact that the private company alone had transmission facilities, the company realized its goal and was awarded a contract with the Department of the Interior in September 1943 to purchase Shasta power. This contract will not expire until the end of 1949.

The Bureau of Reclamation and supporters of public power continue to ask Congress for appropriations for transmission lines. In November 1945 the House Committee on Appropriations recommended \$780,000 for two short lines. There is no reason to believe that the struggle over public power in California has ended. It is apparently destined to continue as an active political issue for many years.

Small landowners are the most precious part of the State.

—THOMAS JEFFERSON

Tenure Reform IN Puerto Rico

By MARSHALL HARRIS. Those in this country who are interested in satisfactory land tenure and who realize its connection with the general well-being of citizens will want to know of the progress of land reform in our Island territory for it has long been recognized that land problems were the root of the poverty in Puerto Rico.



IN PUERTO RICO the terrific pressure of population upon land resources is staggering. Thus, the importance of control over agricultural land cannot be over-estimated. How would we in the United States live if there were 700 million of us instead of 140 million?

Puerto Rico has slightly more than 2 million acres, only 47 percent of which was cropland in 1940. On this island, smaller than many of our counties, about 2 million people live largely from agriculture. Thus, each inhabitant has less than a half-acre of cropland. By comparison, the land resources of the United States permit about 2½ acres of cropland per person.

But this is only a partial picture. In the United States less than one-fourth of the people depend directly upon agriculture for a living, while more than three-fourths of the Puerto Ricans live by farming. Then the average net production per acre of cropland is not so large in Puerto Rico as in this country. As contrasted with the United States the

situation is about as follows: (a) one-fifth as much cropland per person, (b) three times as large a proportion of the population dependent upon agriculture, and (c) relatively less productive land.

The Congress of the United States, even in 1900, knew that control over land in Puerto Rico would be concentrated into a few hands in the absence of some limitation on corporate ownership. The Congress was aware of the inevitable economic, social, and political consequences, and it was not unmindful of its responsibility to the people of the Island. Consequently, a joint resolution provided that no corporation could lawfully own and control land in excess of 500 acres. Later development proved the wisdom of this action.

For more than a third of a century, the 500-acre restriction was openly violated by many corporations, and its enforcement was largely ignored by corporate-controlled governmental officials. By 1934-35, sugar mills and allied interests alone controlled almost one-fifth

of the land of the Island, of which approximately 280,000 acres were owned and 120,000 acres were leased. This represented more than half of the land that was in farms growing sugar cane. It was estimated by reliable authorities that the big four American-owned companies held about 107,000 acres and rented 78,000 acres, or 46 percent of all land operated by sugar companies.

Early Reforms

The first legislation after 1900 to achieve some improvement of tenure conditions was the creation of a Homestead Commission in 1921 to provide land for the landless. Small farms were established to the number of 2,074, comprising 23,750 acres. Between 1921 and 1935 the Homestead Commission was the only tenure-improvement agency on the Island.

The Puerto Rico Reconstruction Administration was created by Executive Order of the President on May 28, 1935. One of its major objectives was to develop homes and farms for farm laborers and for small farmers. Garden homes on 1-acre plots were made available to large numbers of rural and urban workers. Subsistence farms of 2 to 3 acres each were developed for more than 8,000 farmers. A few small family farms of from 4 to 20 acres were established, and 19 large-scale units and 12 cooperative farms were put into operation. This program was later terminated by the Congress, as was the corresponding program in the United States.

Tenure improvement in Puerto Rico, although severely limited, continues as an important aspect of the farm-home ownership and rehabilitation programs of the Farm Security

Administration. These two programs are generally recognized on the Island as sorely needed and highly successful. The Farm Credit Administration has been furnishing funds for the purchase of farms for some time.

Enforcement

In 1936, the second Island-born Attorney General declared his intention to enforce the 500-acre law, so long disregarded, and he proceeded to take the necessary legal steps. But it was not until March 16, 1942, that the final decision making possible the full enforcement of the limitation was handed down by the United States Supreme Court. In confident anticipation of this favorable decision, the Insular Legislature had enacted the requisite enabling legislation a year earlier. So the legal deck was cleared for action, and fundamental land reform got under way immediately.

Tension

Population pressure on the one hand and concentration of landownership on the other explain in large part the emotional tension that grew up during the last decade around the land-tenure situation on the Island.

A storm was brewing in San Juan by the middle of the 1930's. People were malcontent; they were looking for social justice. Underemployment was widespread, and many heads of families were totally unemployed. Hunger, poverty, and disease had reached horrible depths. Half of the families of the Island had only one common room in which to live, eat, and sleep. Meat production was at the rate of 9 pounds and milk production was 10 gallons a year for each person.

The provocative battle cry of one political party was "Pan, Tierra y Libertad"—Bread, Land and Liberty! Its candidates pledged fundamental economic reforms. Land was basic, for with it went bread and liberty. The party was swept into power, and is still there.

It was clearly recognized by Insular leaders and by informed persons in the United States that tenure improvement would have to be expanded if needed adjustment were to be effected. It was with this in mind that the Insular Legislature enacted the Land Law of 1941.

The Land Authority

The Land Law created in the Insular Department of Agriculture a board designated as the Land Authority. The Authority was given four major responsibilities:

(1) To end corporate *latifundia* (large landed estates) and to prevent their reappearance in the future.

(2) To assist in the creation of new landowners.

(3) To provide land upon which *agregados* (squatters) and slum dwellers would build their homes.

(4) To facilitate the efficient and economic use of land for the public benefit.

For these purposes the Land Authority has the power to force corporations to dispose of all their land in excess of 500 acres. It has preference to buy such land provided it offers a price equal to that of the highest bidder. Ample funds are being provided for the orderly acquisition of all land subject to this law.

The land acquired can be used for (a) development of "owner-operated" family farms, (b) division into small subsistence plots for laborers, and (c) establishment of proportional-profit farms. A new day is dawning on our territory in the Caribbean—the gateway to South America. Freedom from want and freedom from fear are being underpinned by tenure reform.

Family Farms

Operators who own no other land and who are qualified by 5 years' experience in farming are being established on family farms. They are not given fee simple title. Rather a man obtains a right to use and to have the products of the farm for life—a usufruct—for an annual payment large enough to repay the principal in 40 years, with interest at 3 percent. The one who holds the usufruct has freedom of operation, but he must follow good soil-conservation practices. In case of cancellation or termination of the contract, he may remove improvements and harvest the growing crops. In case of death, the heirs receive the amount paid on the principal, or the Authority may permit an heir to continue the usufruct.

Extensive operations are not planned in establishing the family

Agitator

People talk about agitators, but the only real agitator is injustice; and the only way to allay the agitation is to correct the injustice.

SIR CHARLES NAPIER



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farms. This work is left mainly to the Farm Security Administration, which is operating so effectively its Home Ownership Program.

Subsistence Plots

Small garden-home plots are being supplied to rural squatters and urban slum dwellers who previously had built their tiny shacks on land that belonged to another and whose only means of livelihood was in wages for their labor. The tenure rights of these laborers in the land on which their homes stood was most precarious. The land was so completely "monopolized" that thousands of families were nothing more than tenants-at-will of the large landholders, usually of the owners for whom they worked. The laborer could thus be dispossessed at the will of the owner.

The garden-home tracts range from about one-fourth of an acre to 3 acres. The Authority may advance poor families as much as \$150 for building materials for a house. The smaller parcels are ceded gratuitously. Rent for the larger tracts may be \$3 a year or less. The funds collected are used for the sole benefit of the local community.

Considerable progress is being made in providing landless folk with a small space for house and garden and subsistence livestock, under secure tenure but at a minimum price. This program is closely related to the proportional-profits farm project, for the laborers are mostly employed on these farms.

Proportional-Profit

The proportional-profit idea is the core of the tenure-improvement program of the Land Authority. It was designed to overcome the problems that emerged in the earlier programs

Family Farm

Let it please thee to keep in order a moderate-sized farm, that so thy garners may be full of fruits in their season.

—HESIOD

and to meet the challenge flung in the face of the land-tenure reformers by those who would maintain the *status quo* in Puerto Rico. The proportional-profit idea aimed at attaining the highly efficient production that is possible under large-scale corporate operation and the use of land that would best serve the public interest.

To accomplish these aims the Authority tries to combine the efficiency of large-scale production and technically qualified management with desirable land use and a hard-working profit-sharing labor force. If this is done successfully, the toughest nut facing Puerto Rican land planners will have been cracked.

Proportional-profit farms range up to 500 acres or larger if necessary for higher production efficiency and better land use. They are "leased" to qualified managers under conditions that are acceptable to the Authority. The manager plays much the same part he did under the corporate set-up. He receives a proportion of the net profit for his services. Laborers receive the prevailing wages, and

each shares in the profit to the extent of the days he worked and in proportion to the wages received. The Authority supplies all of the land and operating capital, audits all accounts, and sees that conditions of the contract are met.

The Crux

This new hybrid—the proportional-profit farm—is a cross between private and public ownership, between corporate and cooperative organization, between capitalistic and communistic enterprise. As such, its strength and weakness in actual operation should be scientifically studied.

The proportional-profit farm is a forthright endeavor to maximize social gain through capitalizing on profit motive, technological improvement, scientific management, efficient labor, and wide distribution of net income. Its success on the Island is inextricably interwoven with the garden-home program for laborers. The two will rise or fall together.

The Future

The whole tenure-reform program in Puerto Rico doubtless will be at-

tacked at every turn in the road by powerful corporations, as it has been in the past. It could be impeded seriously through the appointment of an unsympathetic Governor. The economic relation between Puerto Rico and the United States will have a significant influence.

The human factor is of crucial importance. The triumvirate—public officials, farm managers, and wage laborers—must function as a unit. If any of these fails the entire structure will fall. Public officials are responsible for sound financing, for adequate policing, and for selecting qualified managers. The managers are responsible for efficient organization, for technological improvements, and for labor morale. The laborers are responsible for personal skills, for diligent performance, and for a first-rate live-at-home program.

We in the United States have a twofold interest in this Puerto Rican tenure-improvement program. First, we shall be judged as a world power in part by economic, social, and political progress in our territories. Second, the processes evolved may be usable in the solution of similar problems in continental United States. It is ours to watch and work for ultimate success.

Price

If any Nation would keep security for itself, it must be ready and willing to share security with all. That is the price which each Nation will have to pay for world peace.

—HARRY S. TRUMAN

African Agriculture: ORGANIZED FOR PROGRESS

By HERBERT KING. *Production of food and raw materials of commerce in all parts of the world interests us today. Trained native Africans gradually take their place in the development of agriculture and forestry in the British Colonies of Africa.*



BRITISH COLONIES in Africa have considerable populations with a long tradition of pastoralism or agriculture and a well-developed, if simple, social, and political life. The objective now of the various Colonial governments is to improve the existing rural economy by introducing new and better food and money crops, and by making every unit of land produce more cattle or more food. Agricultural improvements must be accompanied by improvements in water supplies, hygiene, sanitation, education, and transport.

Each Colony formulates its own agricultural policy, and appoints its technical staffs of European experts with qualifications suited to its particular needs. These experts are selected science graduates who then have 2 years of graduate study—at the Cambridge School of Agriculture and at the Imperial College of Tropical Agriculture, Trinidad—before joining the Agricultural Department of the colonies to which they have been appointed.

The technical staff is responsible for research on soils, plant diseases, pests, seed selection, plant breeding, and other matters affecting agriculture. They rely largely on adminis-

trative and field agricultural officers to apply in the field the results of their research, but in some Colonies this work is done by subordinate staffs of African agriculturalists. This practice is likely to become general as more Africans are trained.

The Directorate of the Agricultural Department of Nigeria and its central laboratories for botanical, chemical, and entomological research are at Ibadan. Attached to headquarters, in Southern Nigeria, are several experimental farms where work is done on subsistence crops such as yams, corn, beans, and cassava, and on money crops—oil-bearing plants, cacao, citrus fruits, cotton, coffee. Attention is given to seed selection, plant breeding, methods of cultivation, crop rotations.

In the absence of animals in these tsetse-ridden equatorial forests, green-manuring offers best prospects of maintaining indefinitely the fertility of the same patch of ground. Only by the general application of some such method can the Africans be prevented from destroying the forest in their search for new ground and only when it is demonstrated that the new system is better, will they abandon the shifting agriculture they have used so long.

Similar organizations serve the Gold Coast and Sierra Leone. The environment, products, and agricultural problems are similar to those in Southern Nigeria, though there is some change in emphasis on the crops. Swamp or paddy rice, for instance, receives special attention in Sierra Leone, and cacao in the Gold Coast.

In the Northern Provinces of Nigeria, there is an agricultural center at Samaru, with experimental farms. The tropical grass-lands support cattle. The tsetse fly is absent, other cattle diseases can be controlled by dipping or inoculation, and the real problem is to evolve a balanced economy of mixed cattle-keeping and field agriculture. This is the problem throughout the tropical grass-land of West and East Africa.

Complications

Cattle enlarge the agricultural horizon but complicate farm economy. They require selection according to whether they are to be used for stock, draught, or dairying; crops must be grown for feed and fodder must be stored for the prolonged dry season. But draught-cattle make it possible to plough more land, and manure offers an alternative to green manuring.

The concern is with field agriculture as distinct from the market gardening of the south, and attention is naturally paid to the growing of money crops, such as ground nuts and cotton. Improvements must be thoroughly tested before campaigns to persuade Africans to adopt them are begun and types of ploughs and cattle-pens which can be made by local craftsmen from local materials are selected.

In East Africa, the same basic research on native subsistence crops is pursued. In Uganda, as the banana is to many a staple food, selection trials of 53 varieties have been made. Methods of controlling the banana weevil have been sought through better cultivation and introducing insects which prey on it. Among the objects of research are cotton in Uganda, tea, tobacco, and cotton in Nyasaland, and coffee in Kenya. Cattle of plateau grasslands have been afflicted by rinderpest and tsetse fly; the control of disease and the re-introduction of cattle is a primary objective of research.

Common to All

Many problems are common to all British Colonial Africa—the resistance to improvement through long-established native custom, particularly in regard to cattle, and tree and grass burning; cattle pests and diseases and the need of serums; soil erosion and forest depletion. Therefore interterritorial conferences of agricultural experts have been held, especially in East Africa.

African Center

The East African Agricultural Research Station at Amani in Tanganyika is a center where common problems can be studied. It is devoted to long-term research in those problems which affect all East African territories. When conditions make possible an increase in its staff, it should be of great help to the separate Colonial departments. Similar stations may be set up in other regions of the Colonial Empire.

Even wider contacts are necessary. Crops that do not meet the exact needs of commerce may be unsalable. The position is now remedied but

Nigerian cocoa, because of unskilled and careless handling, once had a bad reputation and was difficult to sell even at low prices. It is not easy to teach the Africans the need for meticulous care in such matters.

In England

The Imperial Institute in London is a link between producers and industrial consumers. On the advisory committees of its Council scientists meet businessmen to discuss timber, vegetable fibers, oils, gums and resin, tanning materials, and other commodities. Detailed information on these is passed on to the Colonies and the Dominions.

On the Imperial Agricultural Bureaux the Colonies, Dominions, and Britain are all represented. The Bureaux consist of experts in different fields of scientific study, each acting as a clearing house of information. The different bureaux deal with soil science, plant genetics, crop and fruit production, animal genetics, health and nutrition, dairying, parasitology, and forestry. The organization operates under an Executive Council.

The Imperial Institute of Entomology and the Imperial Mycological Institute also come under this Exec-

utive Council, but their research work is done on identification. Individual research workers in the Colonies are kept informed on progress in their science in other parts of the world.

The Colonial Advisory Council of Agriculture and Animal Welfare in Britain consists of scientists under the Chairmanship of the Parliamentary Under-Secretary of State for the Colonies. This Council advises on the schemes formulated by the individual Colonies and sent to the Colonial Office for approval.

Forestry

The Forestry Service in Africa is administered separately. Most Colonial territories have a separate Forest Department under a Conservator of Forests. The Conservator is responsible to the Government for carrying out Forest Ordinances, formulating forest policy, and administering it when approved. His staff of foresters is recruited in Britain and usually trained in the Universities of Oxford or Edinburgh, or the University College of Bangor.

These foresters usually become Divisional Forest Officers, responsible to the Conservator for the administration of the forests in their respective districts. In the Crown Forests, each is responsible for controlling fires, determining what timber shall be cut, its price, and so on. He has general supervision of the forests in the native areas, though their administration is the function of the native rulers, who employ native foresters and forest guards.

Native Foresters

The native foresters are specially trained, often at forestry schools such as those in Nigeria, Tanganyika, and

Thought

*Human thought is the process
by which human ends are ultimately answered.*

—DANIEL WEBSTER

Uganda. As short-term forest policy is based on the psychology of the African farmers, its success rests largely on the foresters' influence over these farmers. Trained Africans are likely to be more successful than Europeans in demonstrating to farmers the value of new methods, and in encouraging them to put forest policy into effect. They have been very successful in Nyasaland where forest destruction was becoming critical and where forest policy aims to prevent erosion and to provide timber for houses, fences, and fuel.

State forests have been reserved for the whole community and Native Authority forests for those of each Native Authority area. Though coming under the general guidance and control of the State Forest Department, these are controlled and administered by Africans and the revenue will go to Native Treasuries.

Village forest areas in Nyasaland are designed to provide each village with a permanent woodland calculated on the basis of 2 acres per hut. Independent control and exclusive use are assured to the village through the headman. Already about 4,000 areas have been demarcated. Selec-

tion and demarcation are often entrusted to the Native Foresters who advise the headmen on what trees to plant, how to plant, how and when to prune the growth, how to protect it from dry-season fires.

The African has a role in the future of forestry as important as his role in agriculture. Much of the research on growth and regeneration of trees, nature of the forest crop, pests and diseases must be done in the forests by trained Europeans, but some of it may be done by trained Africans. Research on the strength of timber, its lasting qualities, and allied subjects is done at the Forest Production Research Laboratory, Princes Risborough. The Imperial Institute at London investigates minor forest products. The Imperial Forestry Institute at Oxford cooperates with forest officers in the study of forest flora and other matters, and teaches research methods.

Both in agriculture and forestry, a line of communication links the Colonial Office, research institutes, scientists employed in the Colonies, and the Africans themselves. Policy and experience are passed along the line, and African farmers are applying the results of research.

Until the peoples of the world understand and respect the interests of their neighbors, the victory will elude us. Until the peoples of the world embrace the democratic belief that the dignity of the individual is the basis of the success of nations, the world will not find an enduring peace.

—DWIGHT D. EISENHOWER



Books

WHAT IS FARMING? By *GUSTAV E. LARSON and WALTER MAGNES TELLER.* D. Van Nostrand Co. New York. 410 pages.

AS AN introduction to modern farming in the United States, this book is written especially for three groups of men and women: (1) those who are attempting to decide whether they should take up farming after they are released from military service or civilian war jobs, (2) those farmers who are considering the advisability of moving to some other farming section, and (3) laymen who wish to learn more about living and working conditions on the farm.

It is a revised and enlarged edition of a book with the same title, published by the United States Armed Forces Institute for the use of military personnel in off-duty classes and self-instruction. Much of the textual material is based upon results of studies made by State Agricultural Experiment Stations and the United States Department of Agriculture. In addition, some 20 experts of the Department of Agriculture and Interior contributed factual data and advice on technical aspects.

Thought-provoking and self-appraisal questions are presented in the first part, which is devoted to orientation and an over-all summary, for consideration by prospective farmers and their families. Other questions and answers are designed to illustrate the importance of advance planning and to emphasize that success or failure in a farming venture is de-

pended upon a host of physical, economic, and human factors. Special care is exercised to bring out the advantages and disadvantages of farming from the viewpoint of the farm as a business and as a place to live.

Then comes an elementary but excellent discussion of the composition of our soil and water resources, the elements of agronomy, and the principles of conservation and good land management. Projected against this background is a description of the types of farming, and the kinds of crops and livestock produced in this country. Data show the relative investments required and returns received from different sizes and types of farms. The chapters dealing with part-time farming and the production of specific lines are more detailed and contain more helpful hints than might be expected in a book of this type, and reflect the growing interest of servicemen and factory workers in part-time and speciality farming.

Farm homes, buildings, and equipment are discussed in terms of health, comfort, efficiency, economy and safety. Standards and specifications for buildings and other practical suggestions are given.

The outlook and opportunities in American agriculture, and the numerous problems of selecting, financing and managing a farm are discussed. Special note is made of the

requirements and skills involved in the selection and operation of irrigated, drained, and cut-over farms.

In conclusion, it should be repeated that this book is directed mainly to those who have had little or no farming experience. It is not for the agricultural expert, but experienced farmers and agricultural students will gain much useful information and a better perspective of farming from it. One of its special merits is

that it presents a clear, unbiased picture of farming as a business and as a way of life. It is neither over-optimistic nor over-pessimistic as to opportunities in agriculture for those without previous farming experience. Each person is given the basis and is left to judge for himself whether he has the personal qualities and resources to make a success at farming and rural living.

—Harold A. Vogel

EDUCATION FOR RURAL AMERICA. Edited by FLOYD W. REEVES. University of Chicago Press. Chicago. 213 pages.

THIRTEEN CHAPTERS prepared by 13 people prominent in rural-life leadership here make easy and interesting reading, and present a challenge to attack on all fronts the manifold and deep-rooted problems of this half of our national life.

With the exception of the introductory chapter by the editor of the volume, the chapters are papers given at the 1944 University of Chicago Conference on Education for Rural Communities. They argue for "better understanding among both rural and urban people of rural problems and rural-urban relationships."

Newton Edwards, in the first of these papers, analyzes with forthrightness the nineteenth century "capture of the national state by the forces of eastern capitalism." "And," he says, "educational leadership, in general, lent its blessing to the new industrial order and undertook to cultivate in youth the attitudes, the values, and the skills which that order demanded." The answer to present rural ills is not, he thinks,

that farm youth must "turn cityward in search of economic and social opportunity or else settle down to subsistence farming," but rather the answer lies "in an improved operation of the economy as a whole."

Ralph W. Tyler shows that many earlier interpretations of the armed services' experience with education are conclusions not justified by a careful examination of the facts. For the most part, it is not that these findings, including illiteracy figures, tend to point the ineffectiveness of American education, but, rather, "these results may properly be interpreted as a serious indictment of the failure of the American people to provide educational opportunities throughout the country...." Among the lessons accentuated by the conclusions of the training programs are: the need for clear objectives and the "primacy" of genuine motivation as a touchstone for effective learning. Some other lessons were the need for providing many and varied "real" opportunities for practicing what is learned; the im-

portance of emphasizing the reasons for things taught; verification of the need for constant reexamination of the content of education; the marked improvements that ensue from the use of auditory and visual aids; the value of selecting students for advanced training on the basis of ability rather than income; support for the proposal that schools provide work experience and other mature responsibilities for students; notable improvements obtained by programs for training and retraining of teachers in service; the necessity of adequate support if training programs are to be effective.

In "Organization and Financing of Rural Schools," Howard A. Dawson points out that the solution of the most pressing problems in rural education depends upon the organization of satisfactory local units for the administration of rural schools. First it is essential to accept the proposition that the community school system should provide adequate educational opportunity for every child from the time he enters school until he is ready to take his place in adult society. Satisfactory local organization of rural school units can be obtained through adequate State laws through which reorganization can be effected, through area planning for proper organization, and through educational leadership and an informed public opinion. Economical and efficient expenditure of school funds is not possible without satisfactory local school organization, and good schools are not possible without adequate funds. Adequate financial support for most rural areas depends upon State support and Federal aid for education.

The role of economic cooperation in solving national and world prob-

lems is stressed by E. R. Bowen who reveals that cooperatives are now the biggest business of England and that, throughout the world, one-fourth of the people are members of cooperatives. "Cooperators believe that co-operation is the only hope for democracy. They believe with Henry Wallace that a cooperative economic society will be the living stream of thought for the twentieth century, as a democratic political society was the living stream of thought for the eighteenth century. They accept his challenge that 'The need is for a body of people in accord on general aims, as idealistic and as realistic as were the young Federalists of 1787, to channelize thought and initiate and consider proposals which may lead to a cooperative society.' . . . Cooperation as applied in cooperatives, which the world so badly needs to understand and practice, should be taught by every educational agency in the country."

Other chapters full of grist for the student of rural life and education are: "Farm Income, Migration, and Leisure" by Theodore W. Schultz; "Education for the Use of Resources" by George F. Gant; "The Contribution of the Land-Grant College to Rural Education" by Lloyd C. Emmons; "The School and the Improvement of Education in Rural Communities" by Virgil E. Herrick; "Library Service to Rural Communities" by Leon Carnovsky; "Philosophy and Activities of the Michigan State Farm Bureau in Adult Education" by Eugene A. Smaltz; "Training Rural Youth for Leadership" by B. F. Hennink; and "The Educational Program of the Farmers Union" by Mrs. Jerome Evanson.

—*Charl Ormond Williams*

USDA, MANAGER OF AMERICAN AGRICULTURE. By *FERDIE DEERING*.
Oklahoma University Press. Norman, Okla. 213 pages.

IN THIS BOOK the deficiencies of the United States Department of Agriculture are described as a background for the author's suggestions for reorganization of the Department. As an analysis of the Department's deficiencies, it is more likely to be used as a source of allegedly authentic information for "campaign oratory" than as a stimulus to "thoughtful action that will lead to remedying the deficiencies of the USDA." The author starts on the premise that "no man living understands the complex set-up" of the USDA. "The observations contained herein grew out of that conclusion."

The author demonstrates that there are many things about the Department and its activities which, after years of study, he still does not understand, including the concept that USDA is not now and should not be allowed to become "Manager of American Agriculture."

Great emphasis is placed on the lack of coordination, at the county or local level, of the various activities of the Department. More effective organization in Washington is undoubtedly required to meet many problems of this character. But the author overlooks entirely the fact that an intensely interested and intelligent local citizenry can correct many of the sort of local administrative deficiencies to which so much space is devoted. Effective Federal-State-local cooperation which is required for the successful handling of most of the Department's activities, cannot be imposed from Washington. The author fails to give consideration to State and local responsibilities and opportunities in meeting the problems of effective service to

farmers. An approach from this direction will probably be more productive of improvement than any suggestion put forth by the author.

The suggestion of "a clean sweep of all bureaus and agencies, with their appellations, departmental traditions, and selfish interests" sounds too much like the political approach of "turn the rascals out." The proposal for organization of the Department into three main divisions: Research, Administration, and Education and Information, has some merit perhaps, but is based upon a great oversimplification of the problem. Furthermore, it relates only to organization at the top and there is no outline or blueprint as to how the divisions would be organized so as to avoid the very deficiencies complained of by the author. There is the additional objection that the Administrative Division as proposed would overshadow the balance of the Department and perhaps attempt to become "Manager of American Agriculture."

The book contains many intemperate statements, such as "The effect of the duplication, overlapping, and inefficiency of an awkward, gangling department such as this is to bear down on the farmer rather than lift him up." Or ". . . because of its awkward congestion of bureaus and agencies, it (the USDA) constitutes one of the greatest stumbling blocks remaining in the way of soil conservation."

The USDA has plenty of deficiencies in organization and in its programs, but this book contributes very little either to a better understanding of them or to their correction.

—Jesse W. Tapp

SEAMAN A. KNAPP: SCHOOLMASTER OF AMERICAN AGRICULTURE. By JOSEPH CANNON BAILEY. Columbia University Press. New York. 307 pages.

IT IS an inspiring story that Joseph Cannon Bailey tells in this documented and definitive biography. He gives a clear-cut picture of that remarkable personality who revolutionized the teaching of agriculture in the colleges and founded the far-reaching county demonstration agent system of the United States. This book will prove a boon to all Extension workers, both in its philosophies and in its outline of the broad training county agents must have if they are to be of the greatest assistance to the people they serve.

"Teacher, preacher, businessman, farmer, and consummate politician or statesman," says Mr. Bailey, "he was worth his salt in all of them." And those of us, his followers, who have been with Extension work through its many-sided experiences know that he needed to be them all. As one pioneer home demonstration agent put it, when with hammer and nails she mended a hole burned in an old couple's floor, "Not one thing I have ever learned has come amiss in home demonstration work."

It is the "Schoolmaster of Agriculture" who takes first place in the story, and we see him creating a system of education which "reaches beyond the walls of the college classroom" and carries the findings of scientific research down to the farmer, his wife, and the children on the farm.

The Knapp philosophy was, "It is our mission to make a great common people and thus readjust the map of the world," and he set about doing it through the demonstration method of education, which is effective with

the learned and the unlettered alike. "You may doubt what you hear, you may even doubt what you see," said he, "but you cannot doubt what you do for yourself." Putting his philosophy into practice to point a way out of boll-weevil despair, Dr. Knapp used good farmers with good farming practices as demonstrators in different parts of Texas in 1904-07. Results were so good that the demonstration as an effective teacher spread over the whole South in a very few years, bringing in its wake the Agricultural Extension Service, now at work in the 48 States, in Alaska, Puerto Rico, and Hawaii. All of it is the outgrowth of Dr. Knapp's nearly single-handed accomplishment. He had large responsibility in the passage of the Smith-Lever Act, provided the means that enabled the Agricultural Extension Service to get into action in the greatest adult education movement the world has ever seen.

"One of the rarest of all phenomena in the development and evolution of institutions," said Mr. Bailey, "is for an organization to remain faithful to the intention of its founder." But I believe with him that the greater proportion of the Extension staff today knows that it has actually participated in a method of education that has proved the efficacy of the demonstration and that we have clung to that method because of its results. The farm and the farm home bear witness, and local leaders who have become proficient in skills show that they can pass what they have learned on to their neighbors.

—Jane S. McKimmon

RURAL HUNTERDON: AN AGRICULTURAL HISTORY. By HUBERT G. SCHMIDT. Rutgers University Press. New Brunswick, N. J. 331 pages.

THE ECONOMIC development of the area that is now Hunterdon County, New Jersey, is the central theme of this volume. Agriculture has been the area's basic industry continuously since the pioneers settled there nearly two and one-half centuries ago. The time span of the county's history and its persistent rurality plus the highly commendable manner of execution give this study a significance that can be accorded to very few so-called local histories.

Hunterdon County has been spared many of the natural and man-made calamities that have afflicted other parts of the United States, and probably few other rural counties still have as many valuable source materials relating to its past. The county's official records are unusually complete, as are the files of local newspapers. A surprising number of account books of farmers, artisans, and businessmen are extant. There are large collections of correspondence, diaries, and other personal papers. In collecting and preserving these and other sources of historical data, the county has been fortunate in having a very active local historical society. The task of gristling these sources into a history has been enormous, and the bibliography and footnotes in this volume are a far-from-adequate measure of the author's task.

After epitomizing the stages of agricultural development through which the county has passed, the author describes the geographical features that have affected agriculture there and provides a brief account of

the pre-white inhabitants. The chapter on "The People of Hunterdon" is developed chiefly with reference to the surprisingly large number of national groups that settled in the county, but emigration is also considered. Of prime importance is the first-hand evidence of the many individual reasons for settlement in America. The chapter on "Ways of Life" has a similar social emphasis. Here the changes in standards of living in terms of household equipment, lighting, water supply, food, and clothing are outlined. Other chapters trace the economic history of land ownership, forests and arable land, buildings, equipment, and methods of farming, crops, animal husbandry, transportation, communication and trade, industry, and labor, from the early eighteenth century to the present time.

The methodology and contents of this volume have great importance and significance for local and agricultural history. It is an outstanding example of a local history that contributes to a comprehension of the national scene. It also provides data needed for the careful depiction of the history of American agriculture, because no accurate over-all summary can be prepared until delineations of the actual stage-by-stage developments of all phases of farming and rural life in small areas representative of the main agricultural regions are available. Dr. Schmidt's study contributes greatly to this end and provides a model for similar studies.

—Everett E. Edwards

FARMERS OF THE WORLD; THE DEVELOPMENT OF AGRICULTURAL EXTENSION.
Edited by EDMUND deS BRUNNER, IRWIN T. SANDERS,
and DOUGLAS ENSMINGER. Columbia University Press. New
York. 208 pages.

SIXTEEN authorities on sociology, anthropology, international relations, and agriculture have contributed to this symposium, the primary objective of which is the discussion of "the most effective general approach which a government or a private agency can use in helping rural people to solve their everyday problems." They offer agricultural extension as the most effective general approach to farmers' problems and then discuss extension work as related to the cultural background of farmers in the Pacific Islands, China, India, the Balkans, Latin America, the United Kingdom, Northwest Europe, the Near East, and the United States. There are more general chapters on the nature of extension, diversity and change in the culture of nonliterate peoples, characteristics of peasant societies, and Extension's role in world reconstruction. In addition to the editors, the authors include M. L. Wilson, Director of Cooperative Extension Work.

Extension is defined very broadly as shown by the following quotations from the book:

"Extension is what Extension does."

"Extension is away-from-the-classroom education."

"Extension is simply the effort to put the vital information of the agricultural scientist, whether he be physical or social scientist, at the disposal of the farmer and his wife."

"Extension is an educational agency that not only helps rural people to increase their efficiency and their income but also helps to build these people themselves into understanding, accomplishing, self-confident, capable, men, women, and youth with vision and leadership."

With this broad definition of extension, which in effect covers all outside-of-the-classroom education offered to farm people, the authors emphasize that such education needs among other things to be built upon the cultural life of people, to proceed slowly because farmers are slow to change, use local leadership in planning as well as carrying out programs, use simple methods but be comprehensive in scope, work with communities and all people within them, work with families.

Methods and techniques are described in the discussion of extension work in the different cultures but the demonstration method is most often emphasized and most highly praised.

Discussion of the types of organizations, governmental and private, sponsoring extension work is necessarily brief. Little attention is given to administration except to stress the need for local participation. In fact, Drs. Wilson and Brunner say "extension teaching at its best, regardless of its administrative arrangements, is a social process, not a system or program to be administered."

Although extension is envisaged by the authors as one of the most, if not the most, fundamental need of rural people all over the world, the chapters devoted to extension work in the different countries point up also the need for more adequate credit systems, for systems of land reform, for more adequate systems of communication, of marketing, and for other more drastic and rapid methods of improving farm conditions. It is to be hoped that this

book will not only serve as a challenge for the development and expansion of agricultural extension in the world but will also serve as a

challenge for the development of other forms of rehabilitation and reconstruction.

—*Gladys Baker*

SLOW TRAIN TO YESTERDAY. By *ARCHIE ROBERTSON*. Houghton Mifflin Company. Boston. 189 pages.

HERE IS nostalgia, whimsy, and amusing anecdote put together with a deft touch, along with an occasional wise observation. For the reader who has railroading in his blood this is a must—for the reader who hasn't this may help explain why others have.

Not concerned with big railroad finance nor with their future in an airplane age, Robertson explored many of the nearly 400 remaining little short-line and narrow-gauge railroads and has captured the flavor of their life in recounting his experiences. The leisure, peace of mind, friendliness, become plain as the passenger is really considered an individual. On a short-line train in the South the conductor willingly stopped the train so Robertson could buy cigarettes. A railroad hotel in a western town charged a dollar a night for a room, 25 cents extra for the key. The brakeman on a western narrow-gauge road knows the birthdays of all grown-ups along the line—he can't keep up with the younger generation—and urged Robertson to return soon so they could finish their chat.

These railroads have considerable effect on the areas they serve, and vice versa. In riding the "Ma and Pa" from York, Penn., to Baltimore, Robertson soon realized why it could compete successfully with its large rival. The circuitous route through

the countryside enabled the "Ma and Pa" to ship the products to and from the many prosperous farms in the area. Farmers and creamerymen in Vermont recently bought a short branch line from the bankers because the big railroad, losing money on it, was about to abandon it. Today this line is making no millionaires but is turning a respectable profit.

But the trend is in the other direction. Typical is the "Tweetsie" in western North Carolina and eastern Tennessee with declining business because there are not so many products of the farms, forests, and mines to ship, and it had to abandon passenger service after a flood washed out part of its line. There seems to be a direct relationship between the life of these little railroads and the productivity of the soil in the areas they serve. When the soil gives out they have to give up.

For the reader who has difficulty fathoming future speed in the atomic age and likes his leisure a little slower, this book will give a quiet evening of vicarious satisfaction. The photographs enhance the nostalgia and the drawings add to the whimsy. If the book isn't enough, then ride one of the trains. For a list of them, as a starter, turn to the appendix, titled "Monday, Wednesday and Friday, Mixed."

—*J. G. Riddle*

PAY DIRT: FARMING AND GARDENING WITH COMPOSTS. By J. I. RODALE.
New York. Devin-Adair Company. 242 pages.

THIS, the first book published in America on composts, according to a note on the jacket, is a stimulating and interesting treatise on the use of compost in farming and gardening. As I read through the book I mentally concluded that it was of most value to gardeners and not to farmers in general. But when reading page 234 in the concluding chapter I read this sentence, "If I have stressed the value of compost gardening to amateurs occasionally, in this book, it is certainly not because I think the professional farmer can overlook organic agriculture; quite the contrary—this book is addressed chiefly to the general farmer."

In brief, the author makes a powerful argument in favor of the preservation and use of organic matter. He will find, I believe, few informed people who will disagree on this point. But the author goes far beyond this.

He makes rather broad promises, that composting will make the use of commercial fertilizers unnecessary, that it will prevent animal and plant diseases, that it will control weed and insect pests, that it will prevent seed from "running out," that crops grown on composted soil will be more nutritious for man or beast.

Granting that composting may help solve these problems one is not convinced that the general farmer in the United States has sufficient labor at his command to do an effective and economical job of composting.

Then, too, I do not feel that the

author takes into consideration in a sufficient way the wide range of physical conditions in the United States. Little or nothing is said about the slope of the land, the rainfall, the length of growing seasons, the depths of soil, or other factors that shape our ways of using the land. It certainly would not be feasible to apply expensive compost on sloping land without protecting such land from damaging erosion. We know now that far more plant food is removed from the soil through erosion than through crop removal.

This has turned out to be a rather critical review but in reality it is an easy book to praise. I would rate *Pay Dirt* among the good agricultural books even though it may jolt many folks who have been in rather close touch with the development of agricultural science in America.

The author has a keen appreciation of the value of good food; which is an idea—amazingly enough—that is just beginning to interest a large number of agricultural scientists. He knows what good food means to the welfare of people both from the standpoint of health and a better world order. Yet, beyond all this he knows that most of our food comes from the soil and nowhere else. And while he presents the compost idea with vigor and clarity he always keeps in mind that it is but a means to a desirable end.

—Glenn Rule

Some may think a world food plan is impracticable—a dream of starry-eyed idealists. I suggest that a plan which will open up great new markets for agricultural and industrial products and bring about a great expansion of trade is common sense and economic wisdom. If a plan which does this, and at the same time banishes hunger and malnutrition from the world and gets the nations to cooperate with each other instead of fighting each other—if this is idealism, then I say the world will be the better for a good stiff dose of idealism.

—SIR JOHN BOYD ORR

